

LISTING OF CLAIMS

For the convenience of the Examiner, following is a listing of the present claims. No amendment has been made in this paper.

1. (Previously Presented) A microphone system that executes an adaptive signal processing by using output signals from two microphones and outputs a speaker's voice signal with an improved SN ratio, the microphone system comprising two microphones having directional characteristics, wherein the microphones are positioned relatively close to one another, both microphones are positioned in front of and above the position of the speaker's mouth by approximately the same distance, and the angles formed by the orientations of the microphones with respect to a speaker's vocalizing direction are different for each of the microphones, wherein the angle formed by the orientation of a first microphone with respect to the speaker's vocalizing direction is set to approximately 0° , and the angle formed by the orientation of a second microphone with respect to the speaker's vocalizing direction is set to approximately 45° ;

wherein a signal from the first microphone is supplied through a target response setter having a delay characteristic to a subtracter; a signal from the second microphone is supplied through an adaptive filter to the subtracter; and the output of the subtracter produces a difference signal that is supplied to the adaptive filter which executes adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of the difference signal.

2. (Original) A microphone system as claimed in Claim 1, wherein the microphones are mounted on the sun visor of a vehicle.

3. (Original) A microphone system as claimed in Claim 1, wherein the microphones are mounted on the ceiling above the driver's seat of a vehicle.

4. (Original) A microphone system as claimed in Claim 1, wherein the microphones are mounted on the ceiling above the front passenger seat of a vehicle.

5.-7. (Canceled)

8. (Previously Presented) A microphone system that outputs a speaker's voice signal with an improved SN ratio, comprising two microphones having directional characteristics, wherein the two microphones are spaced apart approximately 9 cm, both microphones are positioned in front of and above the position of a speaker's mouth by approximately the same distance, and angles formed by the orientations of the microphones with respect to a speaker's vocalizing direction are different for each of the microphones, wherein the angle formed by the orientation of a first microphone with respect to the speaker's vocalizing direction is set to approximately 0° , and the angle formed by the orientation of a second microphone with respect to the speaker's vocalizing direction is set to approximately 60° ;

wherein a signal from the first microphone is supplied through a target response setter having a delay characteristic to a subtracter; a signal from the second microphone is supplied through an adaptive filter to the subtracter; and the output of the subtracter produces a difference signal that is supplied to the adaptive filter which executes adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of the difference signal.

9. (Original) A microphone system as claimed in Claim 8, wherein the microphones are mounted on the sun visor of a vehicle.

10. (Canceled)

11. (Original) A microphone system as claimed in Claim 8, further comprising a filter processing means that updates filter coefficients of the adaptive filter.

12. (Canceled)

13. (Previously Presented) A microphone system that executes an adaptive signal processing by using output signals from two microphones and outputs a speaker's voice signal with an improved SN ratio, wherein the microphones have directional characteristics and are positioned close to one another, and the SN ratio of

the output signal from one microphone is raised, while the SN ratio of the output signal from the other microphone is lowered;

wherein a first adaptive signal processor receives an output signal from one microphone and an error signal and provides an output signal to a subtracter, a second adaptive signal processor receives an output signal from the other microphone and said error signal and provides an output signal to said subtracter, and the subtracter outputs said error signal as a difference between said output signals, the first and second adaptive signal processors executing adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of said error signal.

14. (Previously Presented) A microphone system as claimed in Claim 13, wherein one microphone is disposed almost directly above the face of a speaker and both microphones are positioned at about the same height above a speaker's mouth.

15. (Original) A microphone system as claimed in Claim 14, wherein the other microphone is spaced apart on the occipital side from the position of the one microphone.

16. (Original) A microphone system as claimed in Claim 14, wherein the other microphone is spaced apart on the occipital side by about 1 to 5 cm from the position of the one microphone.

17. (Previously Presented) An in-vehicle microphone system that outputs a speaker's voice signal with an improved SN ratio, comprising two microphones positioned at a height above a speaker's mouth, wherein a first microphone is disposed substantially directly above the face of a speaker and a second microphone is spaced apart on the occipital side by about 1 to 5 cm from the position of the first microphone;

wherein a signal from the first microphone is supplied through a target response setter having a delay characteristic to a subtracter; a signal from the second microphone is supplied through an adaptive filter to the subtracter; and the output of the subtracter produces a difference signal that is supplied to the adaptive filter which

executes adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of the difference signal.

18.-19. (Canceled)

20. (Original) A microphone system as claimed in Claim 17, wherein the microphone system determines filter coefficients of the adaptive filter by an adaptive signal processing during a period of non-recognition of a voice, does not update the filter coefficients during a period of recognition of a voice, and sets the filter coefficients determined during the non-recognition of a voice to the adaptive filter.

21. (Previously Presented) A microphone system as claimed in Claim 1, wherein the distance between the two microphones is about 9 cm.

22. (Previously Presented) A microphone system that executes an adaptive signal processing by using output signals from two microphones and outputs a speaker's voice signal with an improved SN ratio, the system comprising two directional microphones, wherein both of said microphones are positioned above and to one side of the position of a speaker's mouth by approximately the same distance, are oriented substantially perpendicularly to the speaker's vocalizing direction, and are spaced apart from one another in the vocalizing direction by approximately 7.5 cm with a first microphone being positioned closer to the speaker than a second microphone;

wherein a signal from the first microphone is supplied through a target response setter having a delay characteristic to a subtracter; a signal from the second microphone is supplied through an adaptive filter to the subtracter; and the output of the subtracter produces a difference signal that is supplied to the adaptive filter which executes adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of the difference signal.

23. (Previously Presented) A microphone system as claimed in Claim 22, wherein the microphones are mounted on the sun visor of a vehicle.

24. (Previously Presented) A microphone system as claimed in Claim 22, wherein the microphones are mounted on the ceiling above the driver's seat of a vehicle.

25. (Previously Presented) A microphone system as claimed in Claim 22, wherein the microphones are mounted on the ceiling above the front passenger seat of a vehicle.

26. (Previously Presented) A microphone system that executes an adaptive signal processing by using output signals from two microphones and outputs a speaker's voice signal with an improved SN ratio, the system comprising two directional microphones, wherein both of said microphones are positioned above and to one side of the position of a speaker's mouth by approximately the same distance, a first microphone is oriented to an acute angle relative to a direction perpendicular to the speaker's vocalizing direction, a second microphone is oriented substantially perpendicularly to the speaker's vocalizing direction, and the microphones are spaced apart from one another in the vocalizing direction by about 2 cm with the first microphone being positioned closer to the speaker than a second microphone;

wherein a signal from the first microphone is supplied through a target response setter having a delay characteristic to a subtracter; a signal from the second microphone is supplied through an adaptive filter to the subtracter; and the output of the subtracter produces a difference signal that is supplied to the adaptive filter which executes adaptive signal processing on the basis of the LMS (Least Mean Square) algorithm so as to minimize the power of the difference signal.

27. (Previously Presented) A microphone system as claimed in Claim 26, wherein the microphones are mounted on the sun visor of a vehicle.

28. (Previously Presented) A microphone system as claimed in Claim 26, wherein the microphones are mounted on the ceiling above the driver's seat of a vehicle.

29. (Previously Presented) A microphone system as claimed in Claim 26, wherein the microphones are mounted on the ceiling above the front passenger seat of a vehicle.